

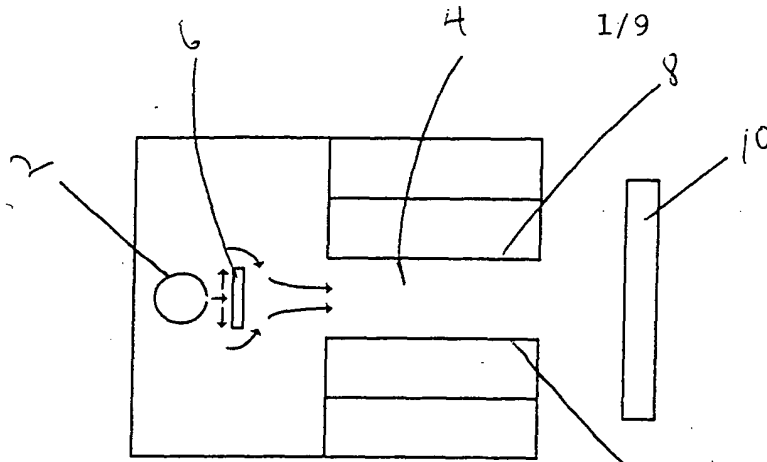
Title: **HOLLOW CATHODE SPUTTERING APPARATUS AND RELATED METHOD**

First Named Inventor: **Alan E. Delahoy**

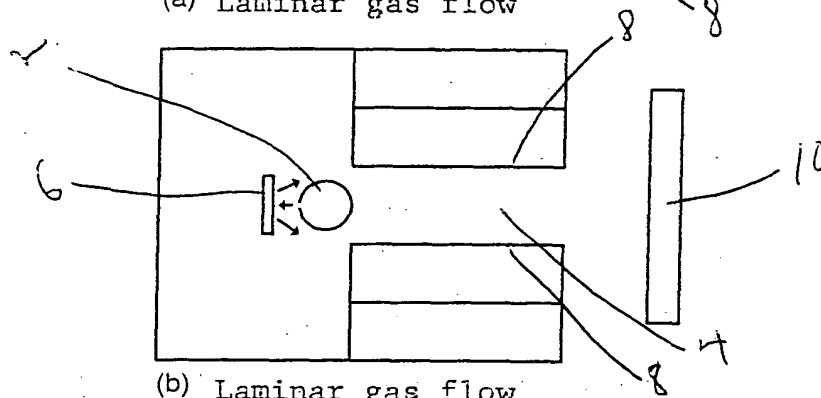
Application Serial No.:

/ Atty. Docket No.: **ENPI 0101 PUS**

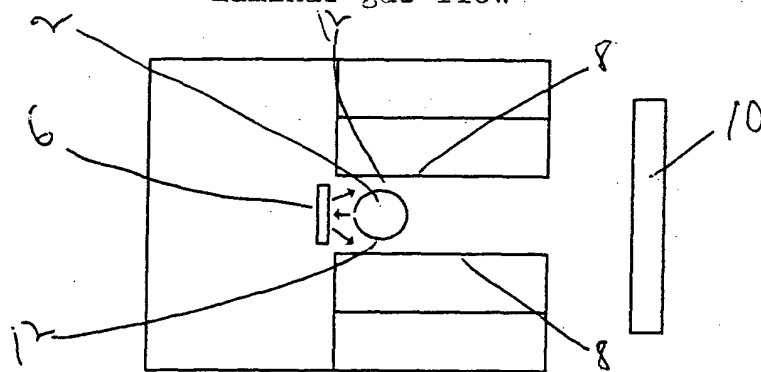
1/9



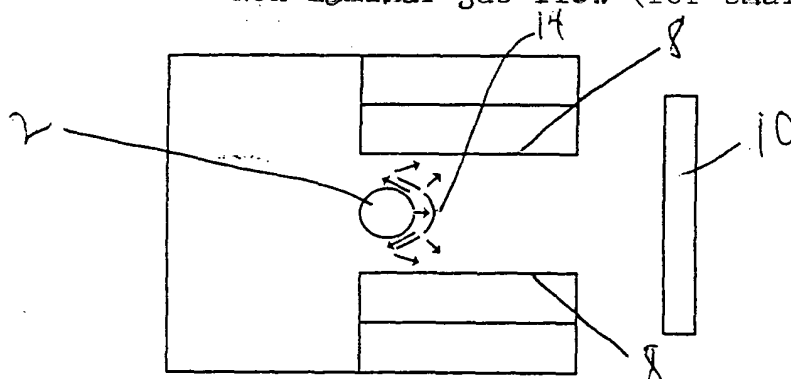
(a) Laminar gas flow



(b) Laminar gas flow



(c) Non-Laminar gas flow (for small gap cathodes)



(d) Non-Laminar gas flow (for large gap cathodes)

Figure 1

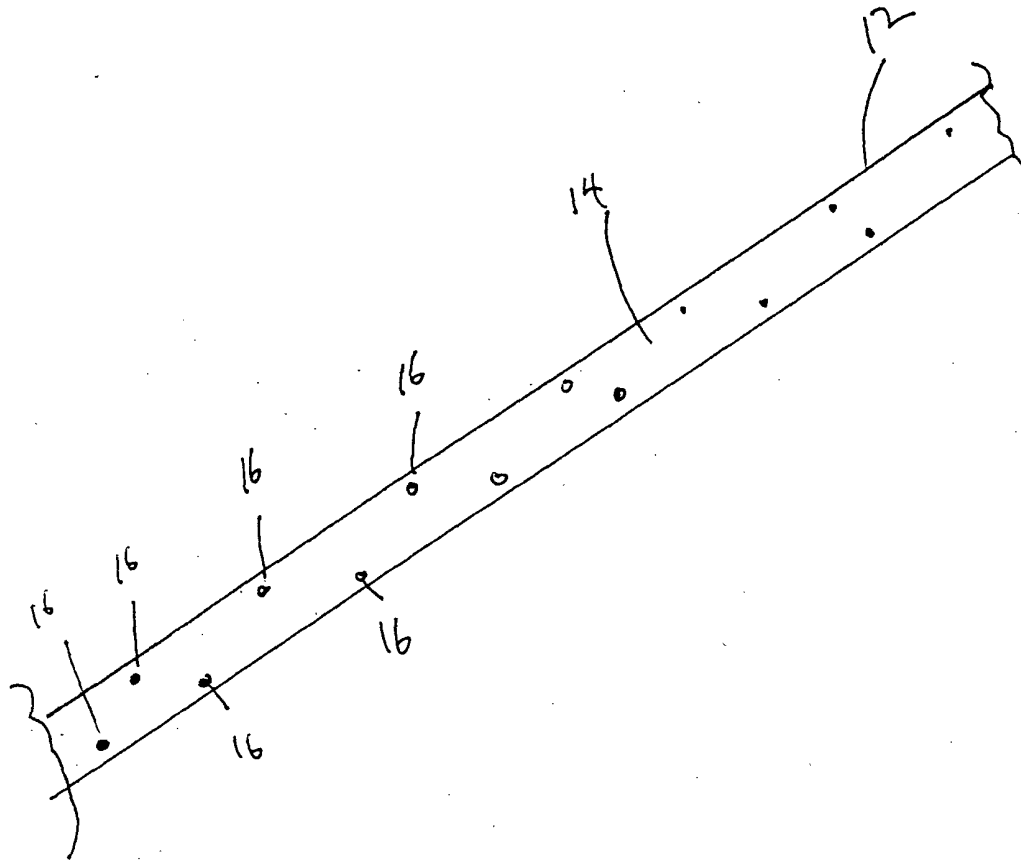


Figure 2

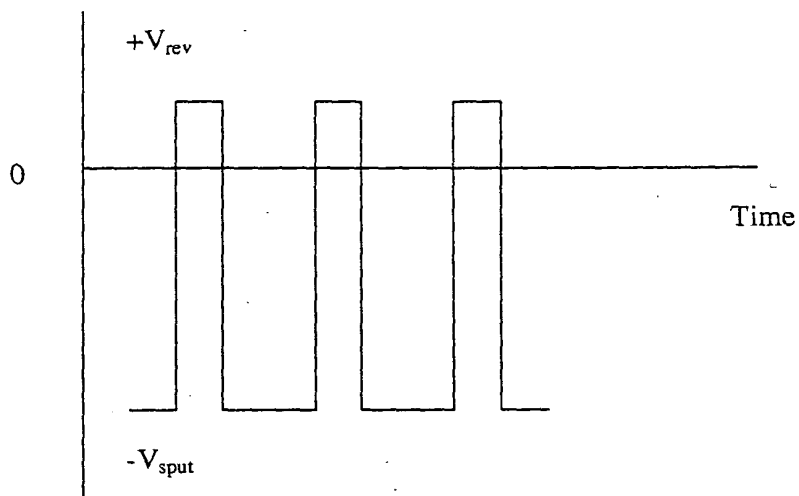


Figure 3

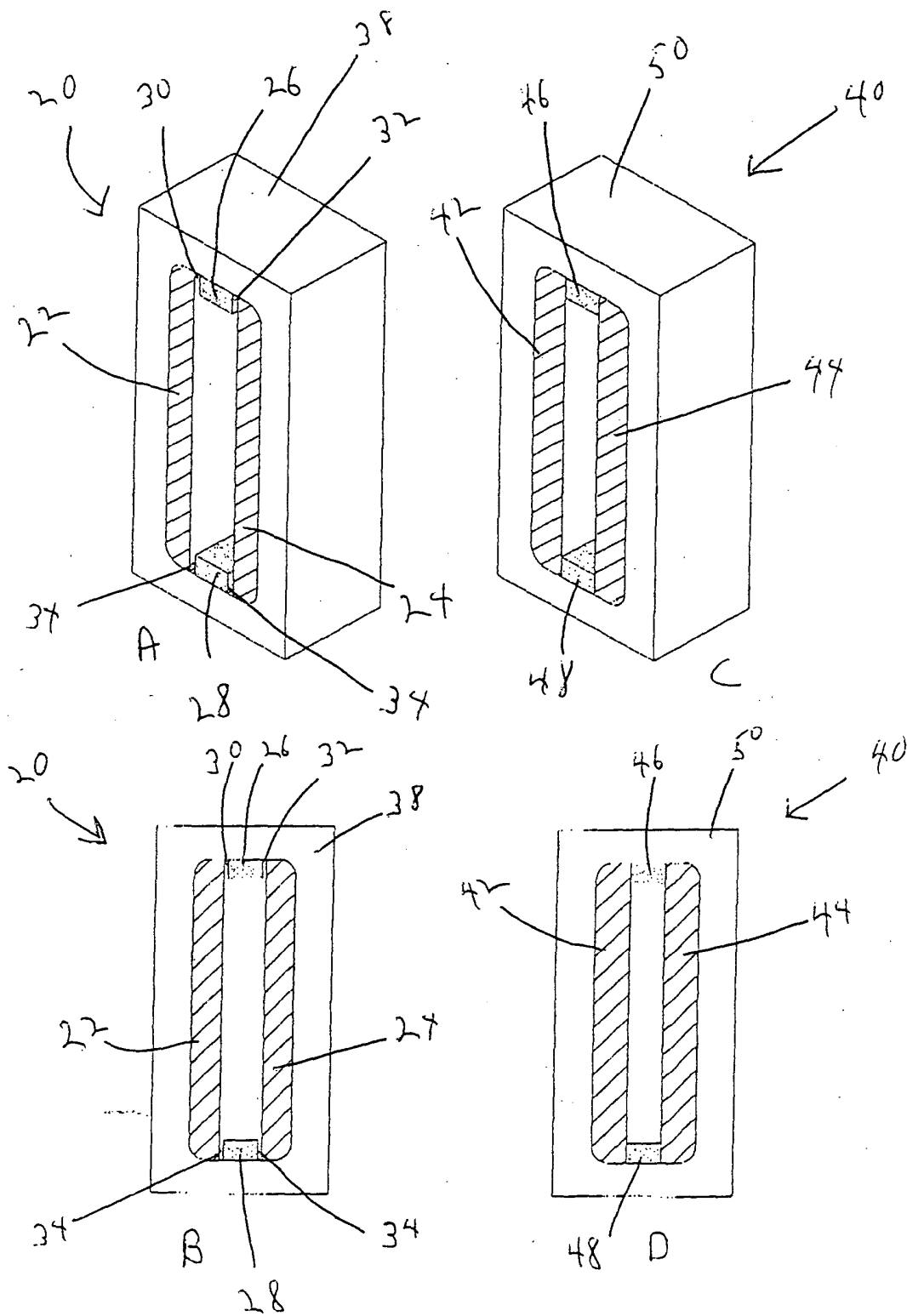


Figure 4

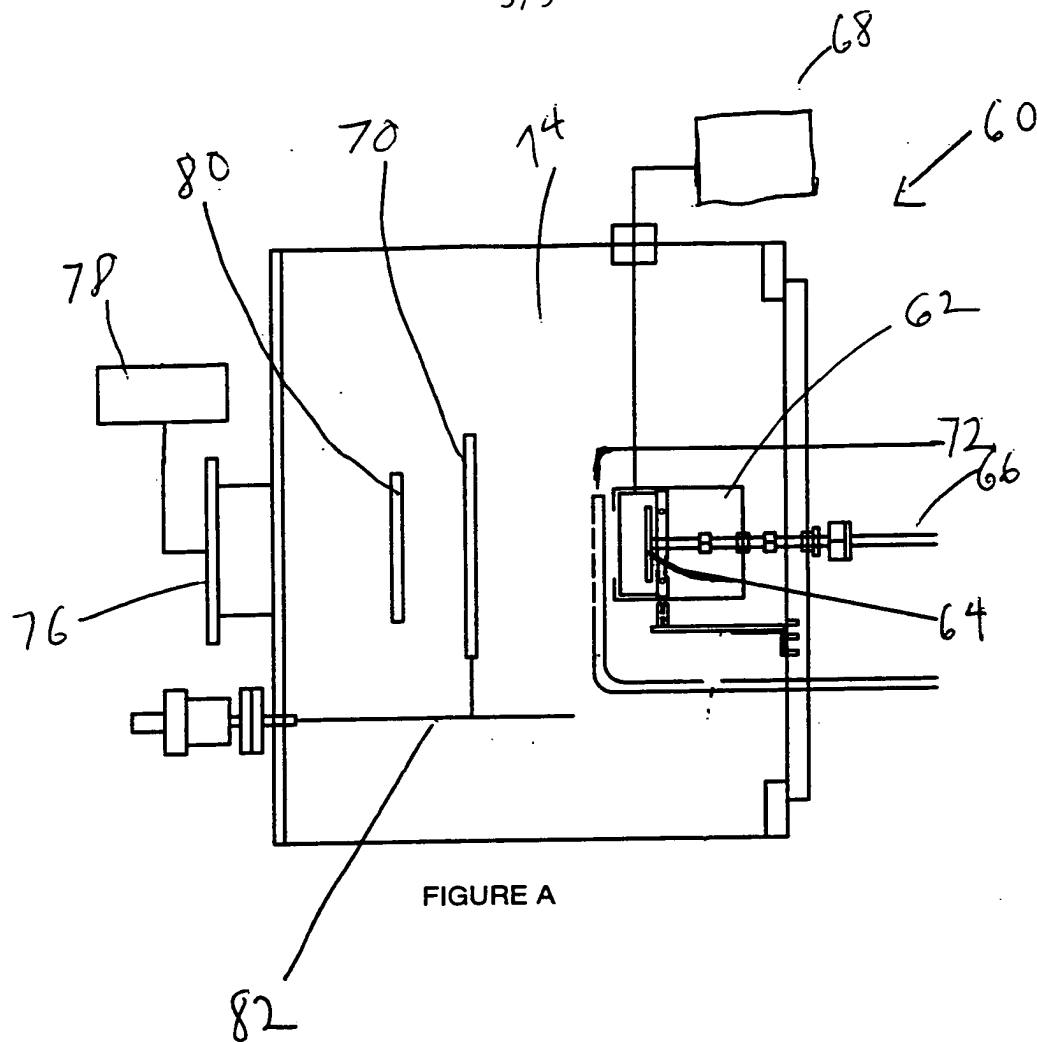


Figure 5A

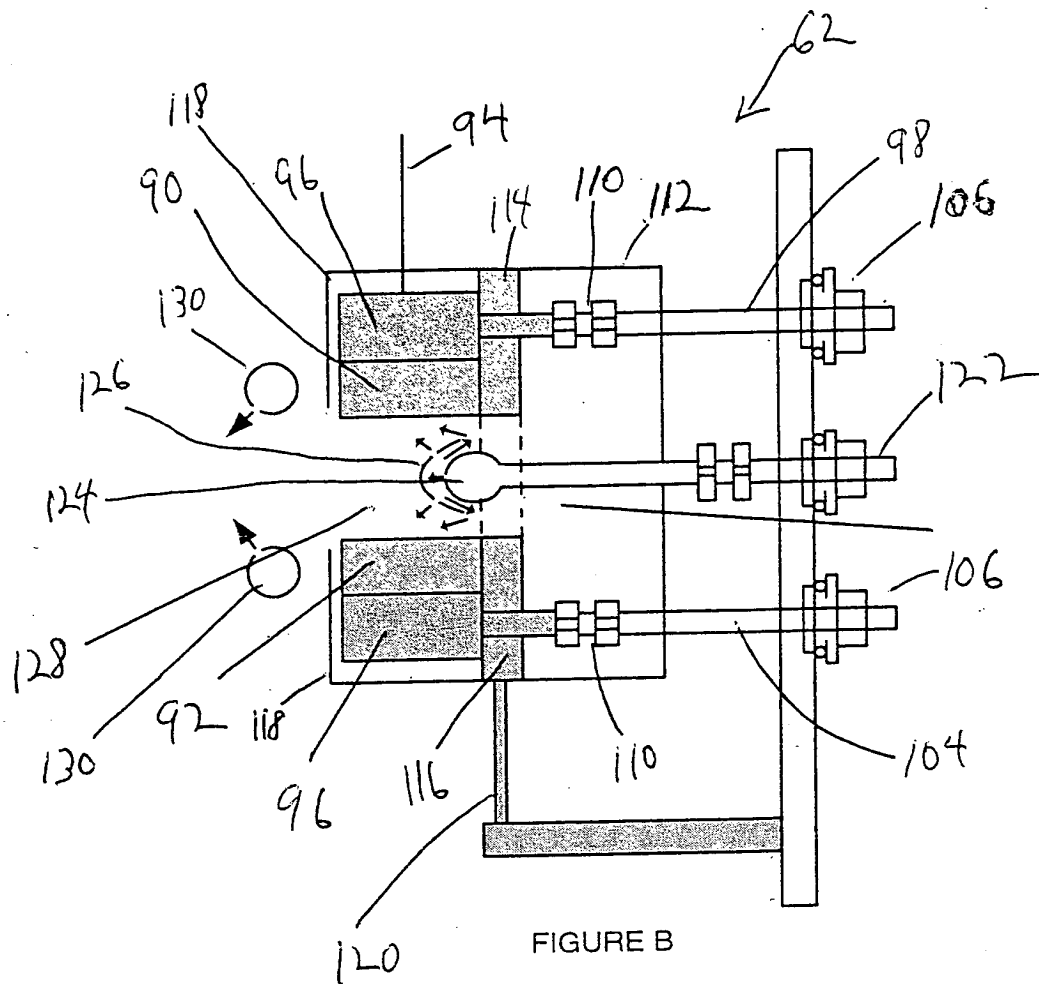
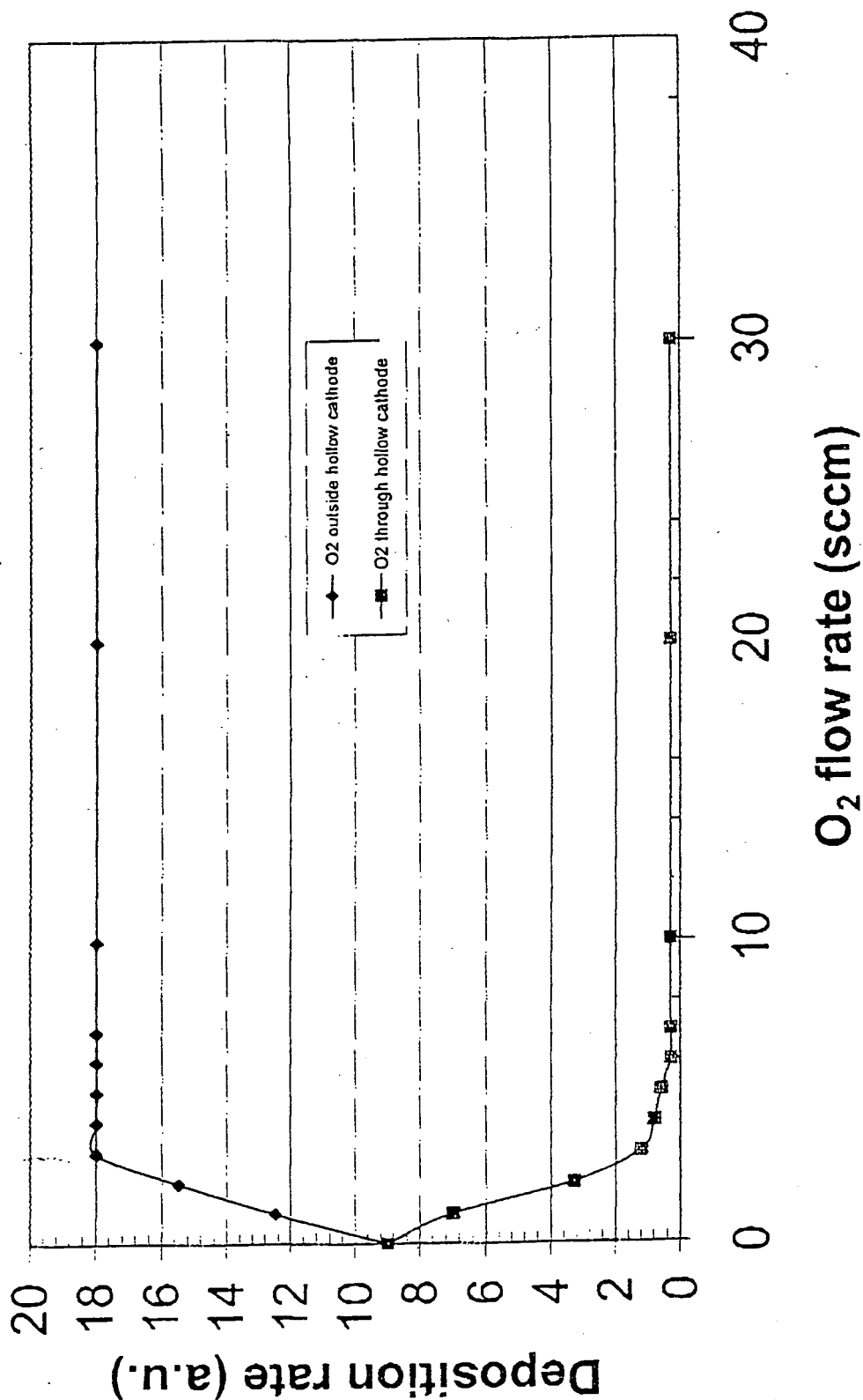


Figure 5B

Figure 6

Comparison of deposition rate for O₂ injected outside the hollow cathode and for O₂ passing through the hollow cathode (Ar 4slm, 300W, 250mTorr)



Title: **HOLLOW CATHODE SPUTTERING APPARATUS AND RELATED METHOD**

First Named Inventor: **Alan E. Delahoy**

Application Serial No.: / Atty. Docket No.: **ENPI 0101 PUS**

8/9

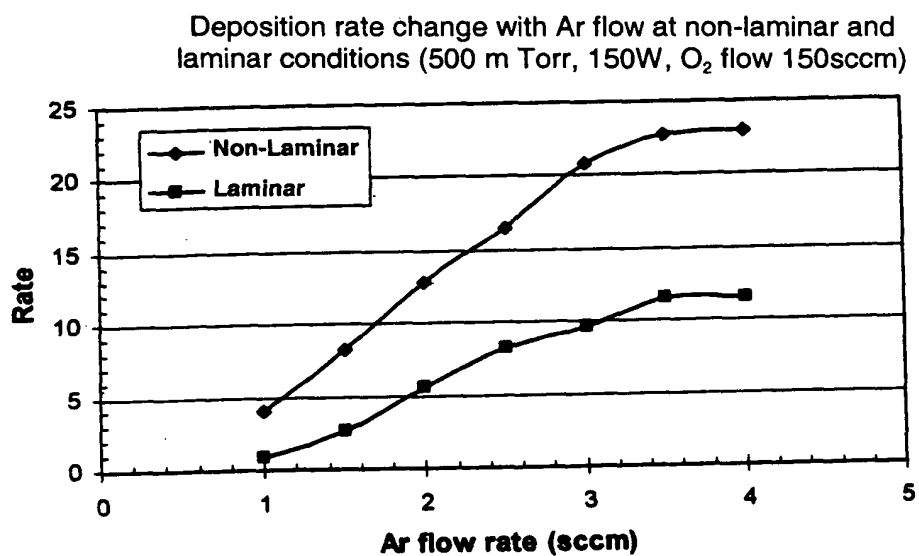


Figure 7

**Film deposition rate vs O₂ flow rate with non-laminar and laminar
Ar flow (Al target, 300W, 500m Torr)**

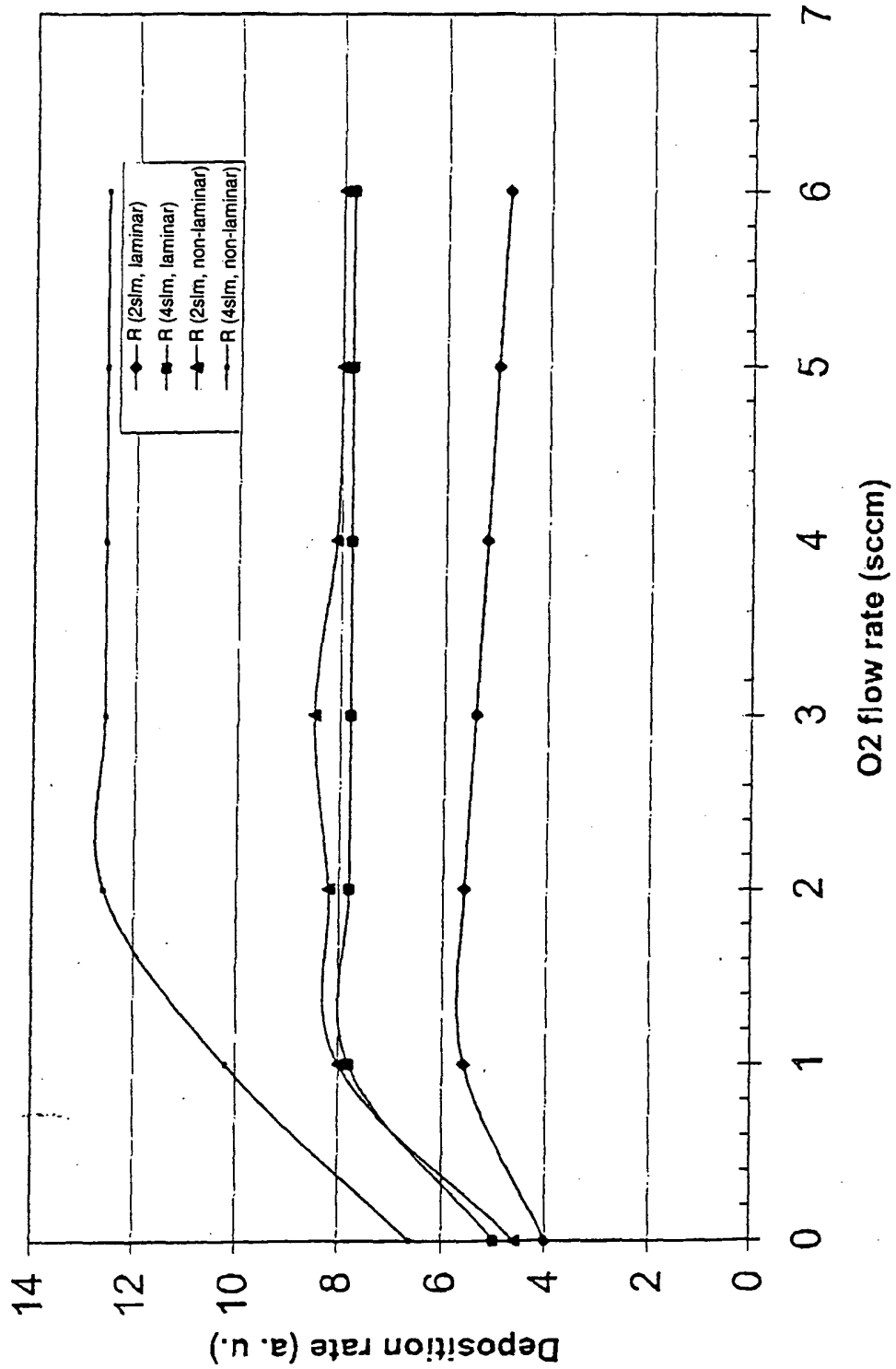


Figure 8